Page 1, Vol. 9, No. 2 April — June 2005

SMARA UPDATE

The Quarterly Newsletter of the Department of Conservation - Office of Mine Reclamation

SMARA DATABASE HELPS AUTOMATE THE ANNUAL REPORTING PROCESS

On or before July 1 of each year, the Office of Mine Reclamation's (OMR) Reporting and Compliance Unit (RCU) starts receiving Mining Operation Annual Reports from the nearly 1,400 mining operations in the State. The reports are logged in and their data is key entered into the SMARA database.

The majority of annual reports are received timely and with complete information. Some, however, have missing or incomplete information. In the past, these reports were flagged for review by RCU compliance analysts. Later, the annual report form and the associated mine file were reviewed together. A letter was then generated to the mine operator, requesting submission or correction of annual report information as well as any additional problems identified during the mine file review.

This was a very labor-intensive process. In many cases, mine operators received letters about their annual reports months after they were submitted. A great deal of OMR staff time was required to prepare these letters.

With the help of the new SMARA database, all of this has changed. Starting with the 2004 reporting period, mine operators that submit annual reports with deficiencies will promptly receive notification in the form of a "Missing or Incomplete Information Report" (*see example, page 2*).

Once the report data is entered into the SMARA database, the database will determine whether there is any missing or incomplete information. If there are problems with the report, it will prompt OMR staff to review the input for possible data entry errors. If this review does not resolve the problems, a Missing or Incomplete Information Report will be generated and placed in the mail on the same day. Copies of the annual report pages with missing information highlighted will be attached to the reports.

Pending receipt of corrected information, OMR compliance staff will continue to review annual reports with problems in conjunction with their associated mine files. To the extent that Missing or Incomplete Information Reports lead to the submission of corrected reports, fewer letters will need to be sent to mine operators.

This automatically generated report will allow the annual reporting process to occur independently of the mine file review process. It will provide immediate feedback to mine operators on deficiencies in their annual reports, and it will allow them to resolve reporting issues in a timely fashion. It

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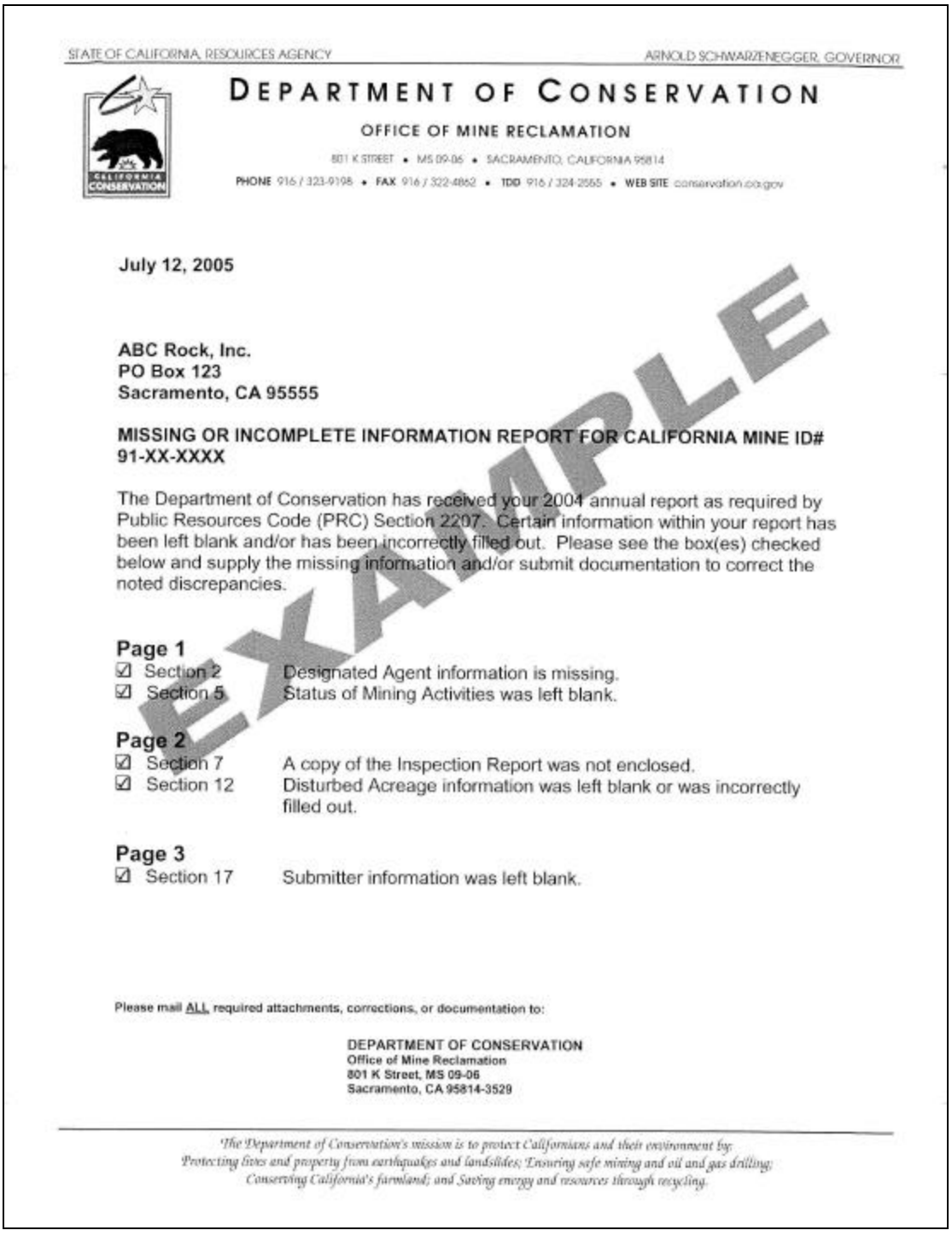
will also save OMR staff time related to the preparation of hundreds of letters.

This is only the first of many planned improvements to OMR's processes that will be based on the new SMARA database.

Douglas W. Craig
Chief, Office of Mine Reclamation



STATE OF CALIFORNIA, RESOURCES AGENCY — ARNOLD SCHWARZENEGGER, GOVERNOR

DEPARTMENT OF CONSERVATION

OFFICE OF MINE RECLAMATION

801 K STREET • MS 09-06 • SACRAMENTO, CALIFORNIA 95814

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July 12, 2005

ABC Rock, Inc.
PO Box 123
Sacramento, CA 95555

MISSING OR INCOMPLETE INFORMATION REPORT FOR CALIFORNIA MINE ID# 91-XX-XXXX

The Department of Conservation has received your 2004 annual report as required by Public Resources Code (PRC) Section 2207. Certain information within your report has been left blank and/or has been incorrectly filled out. Please see the box(es) checked below and supply the missing information and/or submit documentation to correct the noted discrepancies.

Page 1

☑ Section 2 — Designated Agent information is missing.
☑ Section 5 — Status of Mining Activities was left blank.

Page 2

☑ Section 7 — A copy of the Inspection Report was not enclosed.
☑ Section 12 — Disturbed Acreage information was left blank or was incorrectly filled out.

Page 3

☑ Section 17 — Submitter information was left blank.

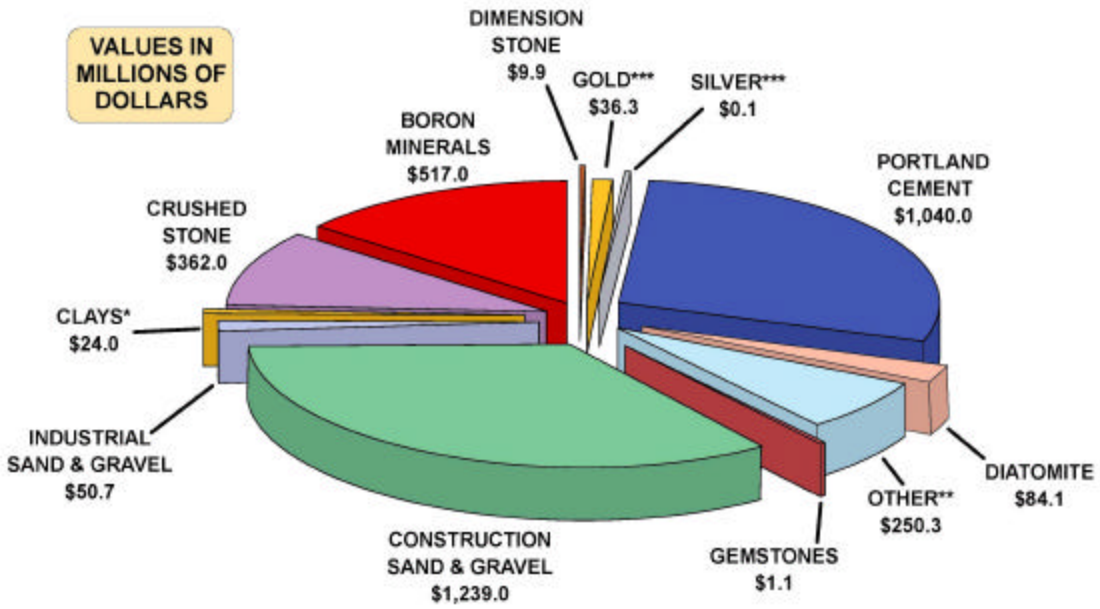
Please mail ALL required attachments, corrections, or documentation to:

DEPARTMENT OF CONSERVATION
Office of Mine Reclamation
801 K Street, MS 09-06
Sacramento, CA 95814-3529

The Department of Conservation's mission is to protect Californians and their environment by: Protecting lives and property from earthquakes and landslides; Ensuring safe mining and oil and gas drilling; Conserving California's farmland; and Saving energy and resources through recycling.

CALIFORNIA NON-FUEL MINERAL PRODUCTION 2004

Total Value $3.61 Billion



*CLAYS Except:
kaolin and fuller's earth

**OTHER Includes:
feldspar, fuller's earth, gypsum, iron ore, kaolin, lime, magnesium compounds, masonry cement, perlite, pumice and pumicite, pyrophyllite, salt, soda ash, talc, sodium sulfate, and zeolites

*** Data from California Geological Survey
Data from unpublished U.S. Geological Survey (USGS) and Subject to change; Official USGS preliminary 2004 data will be published in the California Chapter of the USGS Mineral Year Book, Area Reports: Domestic 2004, Volume II.

New Folks At OMR

The new year brought a number of staffing additions to the Office of Mine Reclamation: a senior engineering geologist, a new manager for the Reporting and Compliance Unit, a new supervisor of the Reporting Section, two compliance analysts, and an executive secretary. The arrival of four new staff in the Reporting and Compliance Unit is especially welcome since the Mining Operation Annual Report forms will soon be sent to all active mine operations in California.

All new staff are assured a busy work agenda in order to process the mountain of inflowing mine-related documents.

Kit Custis, Senior Engineering Geologist
Kit is enthusiastically welcomed back to OMR's Reclamation Unit after nearly a six-year hiatus and a well-deserved promotion. Kit brings over 24 years of engineering geology, hydrogeology and geophysical expertise. He has a B.S. and an M.S. in Geology from California State University, Northridge. Kit is a State Registered Geologist, a Certified Engineering Geologist, and a Certified Hydrogeologist.

Kit is well acquainted with slope stability analyses, groundwater contamination problems, and stream channel restoration. His most recent posting was with the California Geological Survey's North Coast Watershed Assessment Program while engaged in fluvial sediment studies of coastal watersheds in northwestern California.

John Halligan, Senior Environmental Planner
John was recently appointed manager of the Office of Mine Reclamation's Reporting and Compliance Unit. He has worked for the Department of Conservation for the past 15 years, most recently as Supervisor of the Division of Recycling's Policy and Analysis Branch. John has a B.S. in Business Management from San Diego State University.

John brings a wealth of knowledge, experience, and skills to OMR, including the management of major contracts and experience in business process improvement, change management, project management, and data analysis services. He's also organized numerous statewide workshops for beverage container recyclers and processors. John is a proven team leader, trainer, and problem solver.

Recently, John completed work on the implementation of 'CAPRS,' a City-County Annual Payment Reporting System. This system allows cities and counties to apply online for departmental allocations. Having John on our team makes it all the more certain that the SMARA database will evolve into a strong compliance tool.

Piles of washed, sorted, and radially-stacked aggregate awaiting shipment in Sacramento. California has some of the largest aggregate mines and processing plants in the world.

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Edmond Lee, Staff Services Manager I
Edmond has 20 years with the State, and he has a B.S. in Finance from California State University, Sacramento. He previously worked in finance and accounting positions at four other State agencies. For the past 12 years, Edmond has been with the Department of Conservation's Accounting Office.

Edmond enjoys working with people as well as learning new skills. He is always on task, focused, and persistent in resolving problems. He currently supervises the Reporting and Compliance Unit's Reporting Section, which processes the Mining Operation Annual Reports and Annual Inspection Reports.

Alicia Nguyen, Staff Services Analyst
Alicia has a B.A. in History from California State University, Sacramento, and she has 11 years of State service. At the speed of a hummingbird, Alicia is fast becoming a gifted compliance letter-writer extraordinaire. With sagacious perspicacity, Alicia's gimlet-eyed gaze rapidly ferrets out and then pounces on gaffes, typos, and just plain mistakes.

A devoted mother of her precocious five-year old daughter, Alicia successfully blends her office professionalism with her home responsibilities. She is gearing up for her first annual office gauntlet: checking and entering data from the Mining Operation Annual Reports due July 1.

James P. Fitzgerald, Associate Governmental Program Analyst
Jim has a B.S. in Business Administration and a B.S. in Accounting from Bellevue University, Bellevue, Nebraska. He also has a Juris Doctorate from Lincoln Law School, Sacramento. In addition to 20 years in the U.S. Air Force as a weather forecaster, Jim also has 11 years in State service. On occasion, Jim is a professional mediator for the Sacramento Better Business Bureau. He is gearing up to take the California bar exam and anticipates taking either the July 2005 or the February 2006 exam.

Affable, with a droll sense of humor, Jim remains focused under pressure, and takes pride in his ability to help miners resolve their SMARA compliance issues with efficiency

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and good will. He is keen to get started on this year's Mining Operation Annual Reports.

Kimberly Hicks, Executive Secretary

After a year-and-a-half absence, OMR enthusiastically welcomes the return of Kimberly Hicks. Kimberly began work in State service at the California Highway Patrol as an Office Assistant six years ago this May. She transferred to the Department of Conservation in May 2000 to work as an Office Tech in the Division of Recycling, where she stayed for 17 months until transferring into OMR where she became the lead support person.

According to Kimberly, she loved every aspect of working with OMR staff and customers, but could not pass up the opportunity in May of 2003 to work in the Department's Director's Office, where she earned a promotion to Executive Secretary. After taking a six month leave of absence to take care of her three grandchildren, she returned to OMR last November. It was like "coming back home," she says. Kimberly is now working as the support staff person for the Abandoned Mined Lands Unit and filling in for the OMR's current lead support person, Nikky Bristow, who is on maternity leave until June.

Editor's Parting Note….

For the past 1½ years I've had the distinct delight in ginning up this quarterly *SMARA Update.* Now it's time to shove off for new horizons. After 25 years with the State, I'm pulling up stakes and will see if freelance writing pans out.

I would like to extend my thanks to all of my coworkers for the interesting articles, photos, and illustrations they've contributed to this newsletter. I would also like to thank the readers who also contributed ideas, photos, and articles. It's been a real kick-in-the-pants.

Don Dupras
Staff Environmental Scientist
ex-editor

It's been a blast!

SMARA Update Reader Survey

How are we doing? Please take a few moments to provide feedback on the ***SMARA Update*** newsletter to assist us in evaluating opportunities for continuous improvement of this publication. A short survey form is at the following website: http://www.consrv.ca.gov/OMR/smara/newsletter/survey.htm. Please click on the "submit" button when you have completed the survey.

You need not confine your remarks to the survey questions. If you have suggestions outside of the scope of these questions, please feel free to enter any comments or suggestions. We appreciate your time and help. Thanks!

Why Reclaim Mined Lands With Native California Plants?

California Code of Regulations, Title 14, Division 2, Chapter 8, Subchapter 1, Article 9 – titled "Reclamation Standards" – Section 3705(g) expressly requires a mined site to be reclaimed with native plants unless precluded by the end use: *Native plant species shall be used for revegetation, except when introduced species are necessary to meet the end uses specified in the approved reclamation plan.* The question arises: Why is there a regulation requiring a mined site to be reclaimed with native plants?

Reclaimed riparian habitat along the lower Cache Creek, within the Cache Creek Conservancy, Yolo County. After excavating alluvial aggregate, this site was reclaimed and is now protected as part of the Cache Creek Nature Preserve. An extensive effort was made to remove two invasive non-native riparian plants: Tamarisk (or 'Salt Cedar') and Arundo (or 'False Bamboo'). This site now provides an opportunity for the public to experience a natural riparian setting. *Courtesy of Teichert Aggregates, photo by Barry Baba, Restoration Specialist.*

California is uniquely blessed with an extraordinary assemblage of remarkable native plants that are endlessly interesting and provide the natural beauty for which California is famous. From our rugged coastline to the Sierra Nevada, California has an amazing diversity of plant communities. It has the oldest, tallest, and biggest trees on Earth. It also has nearly 25 percent of all of the plant species that occur in the continental United States.

California has nearly 6,000 native plant species, and more than 2,000 of these are found nowhere else on Earth (California Native Plant Society, 2001). Although numerous, approximately 1,500 of California's native plant species are listed as "imperiled", which means they are in danger of extinction. California has more federally listed imperiled plant species than any other state in the continental U.S. (U.S. Fish and Wildlife Service, 2001).

Why are there so many plant species unique to California?

California has so many native plant species because it has a profuse diversity of habitats. A plant thrives only in a place where conditions required for its survival and reproduction are met; those conditions define its habitat.

Important factors that influence different plant habitats include elevation, slope, soils, latitude, rainfall, and temperature. Of course, a plant's survival also depends on other factors such as its ability to compete with other plants for space in the same habitat, to protect itself from destruction by animals, as well as its ability to successfully reproduce and disperse seed.

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California's deserts, mountains, foothills, and grasslands have plant communities that are unique.

An example of how present mining companies are protecting native habitats entails replanting vernal pools after mining. Vernal pools are seasonal wetland habitats that are underlain by impervious clay-rich subsoils and fill with water from winter and spring rains. Currently in the Central Valley, vernal pool wetland habitats have 73 identified native species of sensitive plants and animals. These native habitat "islands" are occasionally underlain by commercially-valuable high-grade aggregate resources.

In order to mine and then reclaim these unique vernal pool habitats back into their original configuration, aggregate miners hire environmental consulting firms. Once mined for aggregate, these sites are reclaimed by contouring and transplanting vernal pool soils and their associated biota.

Another example where native plants exist are over mineralized rock zones – such as metallic-rich rocks that could be mined in the future. Mineralized zones, such as some serpentine and sulfide areas, may support unique plant communities that have evolved over geologic time to thrive on specific sites.

Why should we care about the loss of native plant species?

Zoologists are now recognizing the unique role each plant species on Earth plays in its natural habitat. A native plant species, in turn, is part of a much larger complex ecosystem. When a plant species vanishes, its disappearance represents one less strand in the remarkably intricate web of life on which we all ultimately depend.

Native plants become endangered in a variety of ways. Similarly, the destruction of a native plant community commonly results from a combination of factors. Some of the factors that have contributed to the loss of California's native plant habitats include: urbanization, water diversion, ranching, farming, the introduction of invasive non-native plants, and plant diseases, such as sudden oak death.

Although the loss of a native plant species does not elicit the same sense of loss and nostalgia that might accompany the disappearance of better known indigenous animal species – like the California grizzly or the California condor – the passing of native plant communities can be the harbinger of future trouble.

Since the arrival of Europeans, the growth of agriculture

Reclaimed aggregate pit within the Cache Creek Conservancy, Yolo County. Bright green Elderberry bushes were planted in the upper-middle of the photo to provide a native habitat for the endangered Valley Elderberry Longhorn Beetle that lives only in Elderberry trees in California. *Courtesy of Teichert Aggregates, photo by Barry Baba, Restoration Specialist.*

Once a regionally-significant aggregate quarry in central Sacramento County, this site was reclaimed to vernal pool habitat a few years ago. Vernal pools are ephemeral wetlands that support a variety of native biota. In recent years, aggregate companies have spent much time, effort and money to re-create vernal pool habitats on mined-out quarries. Time will tell if their reclaimed sites are as successful as the naturally formed vernal pools, but their progress to date looks promising. Photo taken in March 2004. *Courtesy of Teichert Aggregates, photo by Barry Baba, Restoration Specialist.*

and urbanization has drastically reduced native plant communities throughout California. This loss of native biodiversity coincides with the decline of many native wildlife species that depend on native plant communities.

Exactly how the disappearance of a native plant community, or even the extinction of a single native plant species, will affect California's ecology is difficult to know. However, there are plenty of historical examples where the loss of native plant habitat has elicited dire consequences. For example, the uncontrolled October 1991 Oakland Hills Firestorm killed 25 people, injured 150, destroyed 2,449 single-family dwellings and 437 apartment and condominium units, and resulted in an economic loss estimated at $1.5 billion.

A major contributing factor of this tragic fire was the unseasonably cold December in 1990 that freeze-damaged extensive groves of eucalyptus trees in the Oakland Hills, especially the common, tall, and aromatic but cold-intolerant Blue Gum Eucalyptus. By the following autumn of 1991, groves of tinder-dry, dead eucalyptus trees – "exotics" originally imported from Australia in the 1880s to replace less attractive native plants – provided a huge fuel source that fed the conflagration once it started.

Another even more extreme example of the consequences from the loss of native plants occurred when the aboriginal colonists of Easter Island cut down and removed its lush subtropical forest: within a few generations, almost all of the native human population died over the battle for scarce resources.

Native plants are often the best choice of flora when reclaiming a mined site.

For any given area in California, plants native to that area have evolved over geologic time to adapt to that soil and climate. Over millions of years, these indigenous species have evolved survival strategies that enable them to adapt to a wide variety of extreme growing conditions as well as native pests, diseases, and herbivores.

Hot, dry summers; drought; occasional winter freezes; and even wildfires have been a natural reality for California's natives. In drought conditions, many native plants hoard water in their small waxy leaves

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and deep roots, and may even go dormant to keep from dying of water loss.

Many species of dry-tolerant California native plants are especially suited to drought conditions and take advantage of whatever water comes their way. Others are adapted to nitrogen-poor soils and do not respond to the application of costly fertilizers. Because of their unique adaptations to local conditions, native plants are a sensible choice to use when reclaiming a mine site.

Indigenous plants have also adapted to periodic wildfires that recycle plant nutrients into the soil and clear out overgrown areas so that new plant seeds can germinate. After a wildfire, the deep roots and stumps of fire-burned native plants begin to sprout anew. Many of the blackened stumps of native plants that first appear to be completely dead will sprout again.

Some indigenous plants have tough seed coatings that require the intense heat from wildfires to crack their coatings in order to germinate. Foothills chaparral is one California native plant community that requires heat for its seeds to germinate.

Still others have evolved a complex survival strategy that requires wood smoke to break their dormancy. Unlike with horticultural crop seeds that are bred to germinate immediately after sowing, seeds of many native plants become dormant after they mature and require "char" (or wood smoke), or a "charate solution" (a blend of wood smoke and water) in order to break their dormancy prior to germination.

After a wildfire devastates an area, everything may look completely dead, but within a few weeks after the winter rains, bright green native plants begin to germinate. Noticing this plant phenomenon, Native Americans sometimes set fire to an area they planned to return to in order to ensure a good harvest.

Reduced use of pesticides

Since native plants have coevolved with local insects, many species are not as severely affected by local insect pests and diseases that may attack alien plants. Native plants have adapted defense mechanisms to insect pests that are common in their habitats. As a result, less pesticide is often required to maintain native plant communities. Decreasing or eliminating pesticide use saves money, reduces adverse impacts to beneficial insects, and reduces human exposure to toxic substances.

Reduced use of water

Native plants are adapted to the unique climatic conditions of their growing area and, once established, they require little or no supplemental irrigation. They often use far less water than other kinds of alien plants. Using drought-tolerant native plants in reclaimed mine lands is a sensible choice to reduce or eliminate irrigation water costs.

Best-suited to provide wildlife habitat

Native plants are often the best-suited plants for a reclaimed mine site because they help sustain the surrounding ecosystem. Such plants also tend to do the best job of providing food, shelter, and reproductive sites for native wildlife – from the Dog-Faced Butterfly to the California Quail. Native animals and plants have coevolved over geologic time to live in specific environments.

Some native wildlife species are entirely dependent on the habitat provided by native vegetation, and when that habitat is removed, so are they. For example, Clark's Nutcracker – a bird native to the Sierra Nevada – cannot survive without the seeds of the Whitebark Pine on which it feeds. In turn, the Whitebark Pine depends on the Clark's Nutcracker to disperse its seeds. Another example, the imperiled Bay Checkerspot – a butterfly native to the San Francisco Bay area – feeds on

and pollinates only specific native plants.

This "obligate interrelationship" is why wildlife biologists inventory the composition of local flora and fauna to evaluate the overall health of an area's ecosystem.

Are non-native plants really harmful?

When non-native plants spread and become established, they may out-compete and prevent native plants from becoming established. These alien species can out-compete with native plants because the natural pests, diseases, or climatic conditions – factors which kept non-native plants in check in their homelands – are missing in California.

The roots of many alien noxious weeds such as Tamarisk, Yellow Star-Thistle, and Knapweed penetrate deeper into the soil than do native plants, and result in depleting the limited seasonal water resources needed by native plants.

Common non-natives, particularly the many varieties of introduced annual grasses, have weaker root systems than natives and substantially reduce a plant community's ability to control soil erosion. For example, the conversion of native chaparral to non-native grasslands significantly increases the risk of slope failure and erosion (Barro and Conard, 1987).

Some prolific non-native plants, such as Scotch Broom and eucalyptus, crowd out native plants and turn once diverse native plant communities into a monocultural habitat that provides no viable habitat for native wildlife.

Numerous scientific studies throughout California show that when areas become infested with non-native plants, populations of indigenous birds, reptiles, small mammals, and insects decline or disappear (Huenneke, 1996).

When non-native plants usurp native plants, they also deprive native wildlife of food and shelter since many native animals do not or cannot utilize non-native plants. Some well-known non-native plants, such as the Eurasian Honeysuckle and Scotch Broom, may appear beautiful and smell nice, but most native bird species avoid them. Many native birds species have very specific nesting requirements, and only biologically diverse multi-layered native plant habitats can provide viable reproductive and nesting sites.

Non-native weeds also damage waterways by clogging waterflow and choking out

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Reclaimed riparian habitat on the Yuba River, south central Yuba County. The Yuba River Goldfields were extensively dredged for gold by huge twin-boom bucket-line dredges almost continuously from 1903 to 1968. It was California's primary gold-producing region for many years during that time span. More recently, some of the dredge tailings were again excavated for use as aggregate, and the site was reclaimed to riparian habitat. *Courtesy of Teichert Aggregates, photo by Barry Baba, Restoration Specialist.*

The ***SMARA Update*** is a quarterly publication of:
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Our Web site address is http://www.conservation.ca.gov/omr. The purpose of this publication is to provide updates on OMR processes, impart the latest reclamation tips, as well as changes in SMARA-related legislation or interpretation of existing statutes by court decisions.

JOB ANNOUNCEMENT — EXECUTIVE OFFICER/SPECIAL REPRESENTATIVE

State Mining and Geology Board

The Department of Conservation/State Mining and Geology Board seeks highly qualified candidates for the constitutionally exempt (non-civil service) position of Executive Officer/Special Representative, State Mining and Geology Board, in Sacramento, CA. Salary Range: $6,785-$7,337/month, plus benefits package.

Candidates must submit a completed Standard State Application (Form 678) and a Statement of Qualifications to Kit Gonzales, State Mining and Geology Board, 801 K Street, MS 20-15, Sacramento, CA 95814. Applications/ Statements of Qualifications must be postmarked no later than Tuesday, May 31, 2005. For additional information about the position or to obtain a copy of the position duty statement, please contact Ms. Gonzales at (916) 322-1082, or via e-mail at smgb@conservation.ca.gov. The duty statement and benefit package information are available online at http://www.conservation.ca.gov/SMGB/index.htm.

Candidates must have a thorough working knowledge of the State's legislative and regulatory processes and excellent written and oral communication skills as necessary in dealing with elected and appointed government officials, members of various professions, and the general public. Candidates must be able to analyze complex technical and policy issues and make recommendations to the Board. Some educational background and experience in geology, seismology, mining or civil engineering is desirable. A working understanding of general business practices, accounting and budgeting, and the management of professional, technical and clerical staff is necessary. Additional desired (but not required) qualification: registration as a geologist in the State of California.

aquatic plants that are essential to wildlife. Tamarisk, for example, uses far more water than native riparian plants, can lower a water table, reduce the water availability to native plants, and change streamflow patterns. Additionally, Tamarisk thickets are used by very few native wildlife species.

Conclusion

California is replete with unique plant communities and – for its size – harbors one of the most diverse plant assemblages in the world. Aside from being required by State regulation, there are many pragmatic reasons why native plants should be used whenever possible to reclaim mined sites. To provide long-term solutions, reclaiming mined-out areas with native plants makes common sense and economic sense. There are a number of excellent native plant choices that can be obtained for virtually every region in the State.

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Don Dupras
Staff Environmental Scientist